Three- or Four-Company Battalions?

Analyzing Real-world Possibilities With a Commercial Wargame

by Lieutenant Colonel Michael K. Robel

Now, I know what you are thinking. Does that battalion have four companies, or only three? To tell you the truth, in all the excitement and change, I kind of lost track of that myself. So, the question is, how lucky do you feel today?

Long time readers of *ARMOR* have seen many changes in the tank battalion organization. When I came into the Army, there were three companies in a battalion, 17 tanks to a company. Companies controlled their own maintenance sections and battalion controlled some centralized supply assets. The Combat Support Company controlled scout, mortar, and air defense platoons. Then came Division 86. Division 86 increased the number of tank companies to four, but reduced the number of tanks in a company to 14. It consolidated all maintenance assets at battalion, removed the ADA platoon to the Divisional Air Defense Battalion, and moved the scout and mortar platoons to headquarters. This was the organization that fought in Desert Storm, and it was very effective.

Now, we are coming back full circle. Battalions are returning to a three-company organization and losing still more of their assets as the maintenance and supply sections are sent to the Division Support Command. This continues a trend of stripping support assets away from line commanders. Yet, by definition of command, they remain responsible for their readiness and receive control of many of these assets when they go to the field.

Digitization is supposed to improve the combat effectiveness of our battalions, enabling them to do more with less. However, it seems to me that the Army 21 battalion has thrown away some of the significant advantages of the Division 86 battalion because of budgetary and recruiting problems without waiting for the new systems to be fielded or proven. I wonder if the fielding of these systems will cause the recall of the Active Army to the continental United States and a further reduction in the number of divisions to eight, or even six.

To refresh everyone's memory, the advantages of the Division 86 battalion were:

- a built-in reserve,
- the ability to defend on two avenues of approach,
- the ability to weight the main effort.

While the AWE has been proclaimed a success, recent observations from the NTC seem to indicate that the Opposing Force (OPFOR) still wins at least 50 percent of the time. It seems that the technology has provided new weak points for an enemy to attack, in spite of the promise of easing command and control.

Now, you may expect that I am an opponent of digitization and change. This is not the case. However, I believe that changing from the Division 86 battalion to the Army 21 version, without the advanced equipment necessary to realize the full potential, is a mistake. My feelings on this were intensified by an article in *Army Times* saying that the change had been ordered without the benefit of simulation study. Accordingly, I decided to simulate the organizational change with *Steel Panthers III: Brigade Command*, a commercial wargame by Strategic Simulations, Inc.

Many may think that using a commercial game to study the problem was inappropriate, but *Steel Panthers III* is a powerful game that provides a good feel for modern armor battle. It models platoons and sections, similar to the Brigade/battalion Battle Simulation (BBS), and generally delivers results comparable to BBS. Commercial, turn-based wargames provide some advantages when studying battles, namely:

FIGHTING VEHICLE CHARACTERISTICS

Attribute	M1A1 (HA)	M1A2	T-90	M2A2	M2A3	BMP-2
Speed	20	21	22		24	24
Hull Armor (Front/Flank/Rear)						
A	57/19/9	57/19/9	65/33/16	12/6/4	14/7/4	4/3/2
H	124/41/20	124/41/20	90/30/15	15/8/4	18/9/4	
R	0/0/0	0/0/0	13/5		9/9/0	
Turret Armor (Front/Flank/Rear)						
A	60/30/15	60/30/15	60/20/10	12/6/6	16/8/8	4/3/2
H	130/65/32	130/65/32	97/49/24	15/8/6	20/16/8	
R			12/13		9/9/0	
Survivability	15	15	9	5	5	4
Electronic Warfare	0	0	1	0	0	0
Fire Control	40	45	30	15	20	15
Accuracy (Gun/Missile)	8	8	7/22	5/22	5/22	3/20

A = Normal Armor, H = HEAT resistant Laminate Armor, R = Reactive Armor

Figure 1

- An excellent and simple to use scenario generator
- *Steel Panthers* (and most wargames) give the player excellent information on the enemy force, not unlike the capabilities the U.S. is striving for with the fielding of the new, digitized weapons systems and "tactical" internet.
- Turn-based games allow the player to compensate for the lack of a staff and subordinate commanders.

Scenario Development

Eight scenarios (each a movement to contact) were constructed. In half of the scenarios, the U.S. side went first; in the other half, the OPFOR player went first. This was to attempt to even out any advantage there may be in going first in a turn-based game. The computer played both sides to even out any prejudices that I might have for one organization or another.

Four U.S. forces were used:

- A balanced (2 M1A1 and 2 M2A2 companies) task force (TF)
- A tank heavy TF (2 M1A1, 1 M2A2)
- A mech heavy TF (1 M1A1, 2 M2A2)
- A tank heavy TF (2 M1A2, 1 M2A3)

The OPFOR in each case was a motorized rifle battalion with three BMP-2 companies and one T-90 company.

In order to eliminate terrain as an advantage to either side, the map was flat. Searching, hitting, rout/rally, troop quality, and tank and infantry toughness were all set to the same value. Turn length was set at 20 turns in all games, and each scenario was run 10 times. In half, the U.S. went first, and in the other half, the OPFOR went first.

Testing the Concept

I expected the balanced TF to win with ease and the others to be closer, with the OPFOR winning some and the U.S. winning some of the three-company battalion fights. The four-company battalion scenarios were run first, to serve as the control. In each case, the U.S. side won every game in about 10 turns with a average victory

Figure 2

The chart at right shows the results of the experiment.

Balanced TF vs MRB (+) (US First)

Game Data				US		Russia		Score		
Game	Turns	US Breaks	Russia Breaks	APC	AFV	APC	AFV	US	Russia	Ratio
1	10	0	5	3	3	41	30	5443	428	12.72
2	10	0	5	2	2	41	32	5513	259	21.29
3	10	0	5	4	4	41	25	5262	623	8.45
4	10	0	5	2	2	41	31	5436	252	21.57
5	10	0	5	0	2	41	27	5318	98	54.27
Average	10	0	5	2.2	2.6	41	29	5394.4	332	16.25

Balanced TF vs MRB (+) (US Second)

Game Data				US		Russia		Score		
Game	Turns	US Breaks	Russia Breaks	APC	AFV	APC	AFV	US	Russia	Ratio
1	9	0	6	1	0	41	32	3707	56	66.20
2	10	0	6	2	7	41	32	3707	842	4.40
3	10	0	6	6	4	41	32	3707	729	5.09
4	9	0	6	1	3	41	32	3707	410	9.04
5	10	0	6	5	7	41	32	3707	1057	3.51
Average	9.6	0	6	3	4.2	41	32	3707	618.8	5.99

TK HVY (3 CO) TF vs MRB (+) (US First)

Game Data				US		Russia		Score		
Game	Turns	US Breaks	Russia Breaks	APC	AFV	APC	AFV	US	Russia	Ratio
1	11	0	5	0	3	41	26	5237	327	16.02
2	11	0	5	5	3	41	32	5505	491	11.21
3	10	0	5	2	4	41	21	5027	499	10.07
4	10	0	5	0	4	41	32	5493	317	17.33
5	11	0	5	0	4	41	28	5324	261	20.40
Average	10.6	0	5	1.4	3.6	41	27.8	5317.2	379	14.03

TK HVY (3 CO) TF vs MRB (+) (US Second)

Game Data				US		Russia		Score		
Game	Turns	US Breaks	Russia Breaks	APC	AFV	APC	AFV	US	Russia	Ratio
1	11	0	6	5	4	41	20	3233	584	5.54
2	11	0	6	11	3	41	29	3553	711	5.00
3	9	0	6	8	1	41	28	3559	394	9.03
4	11	0	6	3	3	41	32	3707	407	9.11
5	11	0	6	7	2	41	26	3457	445	7.77
Average	10.6	0	6	6.8	2.6	41	27	3501.8	508.2	6.89

Mech HVY, US First

Game Data				US		Russia		Score		
Game	Turns	US Breaks	Russia Breaks	APC	AFV	APC	AFV	US	Russia	Ratio
1	8	0	4	10	2	41	32	5513	718	7.68
2	9	0	4	10	1	41	26	5233	598	8.75
3	9	0	5	17	6	41	27	5333	1436	3.71
4	10	0	5	18	8	41	26	4981	1646	3.03
5	9	0	4	18	3	41	31	5459	987	5.53
Average	9	0	4.4	14.6	4	41	28.4	5303.8	1077	4.92

MECH HVY (3 CO) TF vs MRB (+) (US Second)

Game Data				US		Russia		Score		
Game	Turns	US Breaks	Russia Breaks	APC	AFV	APC	AFV	US	Russia	Ratio
1	12	0	7	18	4	41	32	3707	1259	2.94
2	13	0	7	26	7	41	32	3707	1790	2.07
3	9	0	6	20	1	41	31	3663	907	4.04
4	10	0	7	17	1	41	32	3707	888	4.17
5	11	0	6	12	1	41	26	3480	592	5.88
Average	11	0	6.6	18.6	2.8	41	30.6	3652.8	1087.2	3.36

GAME RESULTS

Game Data				US		Russia		Score		
Game	Turns	US Breaks	Russia Breaks	APC	AFV	APC	AFV	US	Russia	Ratio
Balenced	9.8	0.0	5.5	2.6	3.4	41.0	30.5	4550.7	475.4	9.6
TK HVY	10.6	0.0	5.5	4.1	3.1	41.0	27.4	4409.5	443.6	9.9
MECH HVY	10.0	0.0	5.5	16.6	3.4	41.0	29.5	4477.9	1082.1	4.1
M1A2	11.3	0.0	5.2	2.7	4.8	41.0	28.0	4410.9	659.1	6.7
Average	10.4	0.0	5.4	6.5	3.7	41.0	28.9	4462.3	665.1	6.7

M1A2 vs MRB

Game Data				US		Russia		Score		
Game	Turns	US Breaks	Russia Breaks	APC	AFV	APC	AFV	US	Russia	Ratio
1	11	0	6	1	8	41	32	5485	848	6.47
2	11	0	6	0	3	41	32	5495	216	25.44
3	11	0	5	0	9	41	29	5098	1040	4.90
4	11	0	5	0	5	41	32	5468	579	9.44
5	11	0	5	0	8	41	27	5294	950	5.57
Average	11	0	5.4	0.2	6.6	41	30.4	5368	726.6	7.39

MRB vs M1A2

Game Data				US		Russia		Score		
Game	Turns	US Breaks	Russia Breaks	APC	AFV	APC	AFV	US	Russia	Ratio
1	10	0	5	6	6	41	25	3435	986	3.48
2	10	0	5	2	1	41	20	3257	207	15.73
3	15	0	5	8	4	41	32	3697	837	4.42
4	10	0	5	6	1	41	27	3522	370	9.52
5	13	0	5	4	3	41	24	3358	558	6.02
Average	11.6	0	5	5.2	3	41	25.6	3453.8	591.6	5.84
Average	11.3	0	5.2	2.7	4.8	41	28	4410.9	659.1	6.61

point ratio of 11:1. Based on these results, I still expected the OPFOR had a chance of winning some scenarios and that the U.S. would take 11-13 turns to complete the game.

Surprisingly, the tank-heavy TF's engagement results were nearly the same as the first run-through, with a victory point ratio of 10.46:1. I concluded that the TF's real killing power was the M1A1 and the loss of the Bradley company only subtracted a small amount of combat power.

The mech-heavy TF results supported the conclusion: while the U.S. won every battle, the victory point ratio was much closer: only 4.1:1. Average game length in both cases was still about 11 turns.

Finally, for completeness, I ran the M1A2 TF. I expected it to win with about the same performance as the M1A1 TF, perhaps a little better, because the fire control rating for the M1A2 is higher. Amazingly, the M1A2 organization had the lowest score of any run-through, except the mech-heavy task force. Examination of the vehicle statistics did not give any clues as to why this was so, and a few more tank-heavy TF games were played, with nearly identical results to the first group.

I then played some human-versus-computer, and human-versus-human games. There was no significant difference between these and the all-computer games.

On average, each game ran according to the same general pattern, about two turns elapsing before contact, then two or three turns of direct fire combat, and then 5-7 turns of the U.S. mopping up the battlefield. The OPFOR force usually broke after the second direct fire turn and would be ineffective the rest of the game. Results of the engagements are shown in Figure 2.

Conclusions

Considering the results of the game, I reluctantly concluded the superiority of the U.S. equipment is such that the TF has only a limited effect on the battle outcome, although there is a risk of increased casualties until the potential of digitization is fulfilled.

The loss rates approximated those of Desert Storm, so I felt the performance was relatively realistic. Interestingly enough, loss rates with BBS are much more even.

Repetitive playing allowed me to make some other observations that may have some relevance:

ATGMs are not effective in *Steel Panthers III* (at least in 1999). This is a result of the values assigned to special and reactive armor and anti-missile defenses. Time after time, I watched ATGMs hit targets without effect. While the warhead-armor battle ebbs and flows with technology, it does not appear that the *Steel Panthers III* models advanced concepts such as increased stand-off, tandem warheads, and top-attack methods, all of which compensate for improved defenses.

The IFVs routinely resisted tank and ATGM fire. If ATGMS or sabot hit real IFVs, they are going to be destroyed. Additionally, the BMP and M2 flailed away at each other, without result, which again does not match reality.

LTC Michael K. Robel, commissioned in 1976 from the University of Florida, has served as a tank and cavalry platoon leader and troop XO in the 11th ACR, and as a company commander, BMO, S4, S3 Air, and brigade S4 in the 1st ID, including service as G3 operations during Desert Storm. He has worked in simulations at the 87th Exercise Div., Birmingham, has served as program manager for a game company publishing commerical wargames, and is currently working on WARSIM 2000 in Orlando, Fla.